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Dewberry & Davis

part of report submitted to City of Roanoke officials

ROANOKE RIVER FLOOD REDUCTION PROJECT
PHASE IIA INTERIM REPORT

VIRGINIA SCRAP IRON & METAL #1

TAX NUMBER(S):	1410201, 1410202
POA GROUP:	#3
CITY POA APPROVAL DATE:	JULY 24, 1992
COE STATIONS:	28+50 TO 37+50 R2
COE MAP NUMBERS:	P-27
DATE SUBMITTED:	OCTOBER 12, 1992

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1.0 EXECUTIVE SUMMARY

It is suggested that this Report be read in conjunction with the Reports for the Takings on Virginia Scrap Iron & Metal #2 (Tax No. 1510101) and Norfolk Southern #8 (Tax No 4030301 - 18+00 to 28+50 RT). These Takings are interrelated, in that the Virginia Scrap Iron & Metal operation is wide spread over all of the three (3) properties. In accordance with the Amendment to Agreement for Consultant Services, dated June 15, 1992, this Phase IIA portion of the Environmental Assessment (EA) for the City of Roanoke's Roanoke River Flood Reduction Project (RRFRP) was conducted. Services provided were based on the previously completed RRFRP Phase I EA (dated November 20, 1991), wherein the following suspect conditions were noted (refer to Suspect Conditions Site Plan for condition location):

- The site has extensive deposition of scrap metal, including drums, tanks, rail road cars, vehicles, and structural members both within the Taking and on the Residual Property.
- At the east corner of the Taking, adjacent to a railroad trestle, is a deposit of drums, some which are marked as "Hazardous Waste". There is also various scrap metal and equipment, including an airplane. Additional information from the City, obtained after the field activities were performed, indicated that this drum area had been investigated by the City's Hazardous Materials Team right after the 1985 flood, which determined that hazardous materials were not present.

Based on the Phase I EA compilation of suspect conditions (research, regulatory agency data base review, and field reconnaissance on August 2, 1991), Phase IIA field investigations were conducted (additional research was not deemed necessary. These studies consisted of installing 19 passive soil gas (PSG) samplers; performing four (4) hand augers, with one (1) hand auger converted to a temporary ground water sampling well; and, one (1) composite sample of water from drums in a drum area. A summary of the field investigations and test results are as follows.

Taking Within Drum Area: PSG Sample 6 indicated a low level of petroleum hydrocarbons, with a modified total ion count (MTIC) of 1,063,390. The laboratory indicated that the prominent constituent for the sample was Toluene and there was a very low level of Tetrachloroethylene (PCE). Contents from four (4) drums in the Drum Area were sampled and composited, and laboratory analyses indicated a Cadmium level of 0.002 ppm, which is less than the Maximum Contaminant Level (MCL) of 0.005 ppm, above the Chronic Water Quality Criteria (WQC) of 0.0015 ppm, and below the Acute WQC of 0.006 ppm; and, a Lead level of 0.12 ppm, which is above the MCL of 0.015 ppm, above the Chronic WQC of 0.0051 ppm, and below the Acute WQC of 0.1310 ppm. Analysis for TOX, VOCs, Spent Solvents and the other metals constituents, indicated a TOX level of 0.015 ppm, which is not believed to be significant as none of the chlorinated constituents in the VOC scan were present above laboratory detection limits; and, the other analyzed parameters/constituents were below the laboratory detection limit. A hand auger/temporary ground water sampling well was installed immediately downgradient of the Drum Area; a soil sample from 0 to 2.5 feet indicated low levels of TPH at 13.0 ppm, which is below the Virginia Water Control Board (VWCB) action level of 100.0 ppm for underground storage tank (UST) closures and below the Virginia Department of Waste Management (VDWM) limit of 50.0 ppm for the use of petroleum impacted soils as clean fill. Water samples from the temporary ground water sampling well indicated a Lead level of 0.10 ppm, which is above the MCL of 0.015 ppm, above the Chronic WQC of 0.0051 ppm, and below the Acute WQC of 0.1310 ppm. All other constituents/parameters (VOCs, PCBs, Metals) analyzed for the samples in this area were either below

laboratory detection limits or not above the comparative levels utilized in this Report. Based on this assessment a Phase IIB investigation is recommended, consisting of five (5) additional hand auger/temporary ground water sampling wells (area is inaccessible to drill rigs) with three (3) downgradient of the Drum Area to assess if there are higher concentrations of Lead in the ground water, two (2) downgradient of PSG Sample 6 to assess if there are petroleum constituents (i.e. TPH) at detectable levels within the soil or ground water, and one (1) ground water sampling well (installed via normal drilling methods) near the upgradient line of the Taking upgradient of the Drum Area to assess if conditions background of the Drum Area are possibly responsible for the elevated Lead level in the well and the petroleum constituents noted in PSG Sample 6.

Remainder of Taking: PSG Samples 7 and 11 each indicated low to moderate levels of petroleum hydrocarbons with respective MTICs of 1,877,204 and 1,718,475. PSG Sample 15 indicated a MTIC of 598,356, which was considered to be predominantly Toluene. The adjacent Takings on Norfolk Southern #8 (which is utilized by Virginia Scrap Iron & Metal for storing scrap material) and Virginia Scrap Iron & Metal #2, each had a ground water sampling well, which indicated TPH levels in the ground water at 1.5 ppm and 2.5 ppm, respectively. Based on the PSG results and the conditions encountered on the adjacent properties, a Phase IIB investigation is recommended, consisting of three (3) hand auger/ temporary ground water sampling wells along the lower banks of the Taking (area is inaccessible to drill rigs) and one (1) ground water sampling well (installed via normal drilling methods) near the upgradient line of the Taking to assess the potential for a wide spread TPH impact on groundwater. Furthermore, PSG 11 was in a depressed hollow in which active burial of scrap drums appeared to be taking place; it is recommended that a hand auger be performed (and if possible install a temporary ground water sampling well) to assess the potential for constituents possibly associated with the drums for causing the elevated ion count in PSG Sample 11.

Hand auger samples H-1 (composited from 0 to 4.5 feet), H-2 and H-4 (both composited from 0 to 5.0 feet) were performed in areas adjacent to deposited drums each indicated low TPH levels (13.0 ppm, 21.0 ppm and 11.0 ppm, respectively), which are below the VWCB action level of 100.0 ppm for UST closures and below the VDWM limit of 50.0 ppm for the use of petroleum impacted soils as clean fill; and, some low levels of Total Metals, however, only Barium at 404.0 ppm in H-1 and 408.0 ppm in H-2 were above the comparative Resource Conservation and Recovery Act (RCRA) Action Level or 400.0 ppm. Other constituents/parameters (PCBs, TOX and Metals) were either not above laboratory detection limits or above comparative levels utilized in this Report.

As Barium was only slightly above the RCRA comparative level, and none of the other Total Metals in the soil samples exceeded the comparative levels, Phase IIB investigations for Total Metals in soils is not recommended at this time. However, as elevated levels of Lead were encountered in a ground water sample above comparative levels from the Drum Area (0.10 ppm) and on the adjacent property of Norfolk Southern #8 (0.35 ppm), it is recommended that the sampling wells installed for the assessment of the possible TPH impacted ground water be tested for Lead as part of the Phase IIB investigation.

It should be noted that the construction in this Taking may entail extensive excavation which may encounter large amounts of scrap metal, drums, vehicles, tanks or other vessels which may require special consideration for disposal. Based on the analyses performed on the drum contents, soils and ground water (TOX, Metals, VOCs and PCBs) within the Drum Area, the Drum Area only indicated low elevated levels of Lead. Furthermore, elsewhere within the Takings associated with

the Virginia Scrap Iron operations. Lead levels in ground water samples were at higher concentrations than indicated from the drum contents or the ground water at the Drum Area. The data from the Drum Area, at this time, does not suggest a release to the environment, of constituents directly associated with the drums, at significantly elevated levels; however, the City may wish to have the Property Owner provide additional testing on the drum contents and properly empty the drums and remove them from the Taking.

2.0 SUSPECT CONDITIONS

Based on the Phase I EA research and field reconnaissance, the following suspect conditions were noted (refer to the Suspect Conditions Site Plan):

- The site has extensive deposition of scrap metal, including drums, tanks, rail road cars, vehicles, and structural members both within the Taking and the Residual Property.
- At the east corner of the Taking, adjacent to a railroad trestle, is a large collection of drums, some which are marked as "Hazardous Waste". There is also various scrap metal and equipment, including an airplane. Additional information from the City, obtained after the field activities were performed, indicated that this drum area had been investigated by the City's Hazardous Materials Team, which determined that hazardous materials were not present.

3.0 ADDITIONAL RESEARCH

As the suspect conditions were readily apparent during the Phase I EA, additional research was not deemed necessary.

4.0 FIELD INVESTIGATIONS AND LABORATORY ANALYSES

Based on the suspect conditions identified in the Phase I EA research it was proposed to install 19 PSG samplers and perform four (4) hand augers, one (1) ground water sampling well, and three (3) surface samples, as identified in the Phase IIA Plan of Action (POA) submitted July 21, 1992.

The specifics for conducting the PSG surveys, for drilling and sampling, for the laboratory analysis, and for the Quality Control Quality Assurance (QC/QA) are discussed in detail in the Background/Support Document for this Project. Copies of the PSG Laboratory Results/Interpretations are attached in Appendix 1; Boring Logs for hand auger borings with soil descriptions, sample depths, and organic vapor "head space" readings are attached in Appendix 2; and, the laboratory analysis results are presented in the attached Laboratory Analysis Table in Appendix 3.

4.1 Passive Soil Gas Survey. The PSG samplers were installed on July 30, 1992 and removed on August 6, 1992; the locations of the samplers are indicated on the Phase IIA Test Location Site Plan. The results are as follows:

ROANOKE RIVER FLOOD REDUCTION PROJECT PHASE IIA INTERIM REPORT	
VIRGINIA SCRAP IRON & METAL #2	
TAX NUMBER(S):	1510101
POA GROUP:	#3
CITY POA APPROVAL DATE:	JULY 24, 1992
COE STATIONS:	14+00 TO 18+00 R2
COE MAP NUMBERS:	P-25
DATE SUBMITTED:	OCTOBER 12, 1992

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1.0 EXECUTIVE SUMMARY

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- The site has extensive deposition of scrap metal, including drums, tanks, railroad cars, vehicles, slag, and structural members both within the Taking and the Residual Property.

Based on the Phase I EA compilation of suspect conditions (research, regulatory agency data base review, and field reconnaissance on August 2, 1991), Phase IIA field investigations were conducted. These studies consisted of installing five (5) passive soil gas (PSG) samplers and installing one (1) ground water sampling well. A summary of the field investigations and test results are as follows:

Entire Taking: PSG Sample 2 indicated a moderate level of petroleum hydrocarbons, with a modified total ion count (MTIC) of 3,224,429. The laboratory indicated that the sample signature was similar to diesel fuel.

The area in the vicinity of boring/well B-1/MW-1 had extensive amounts of scrap metal, drums and slag on the surface. A soil sample from boring B-1 composited from 3.5 to 5.5 feet was analyzed for Total Metals and Polychlorinated Biphenyls (PCBs), which indicated some metals above comparative levels:

- Lead at 116.0 ppm versus a New Jersey Department of Environmental Protection (NJDEP) Residential Guideline of 100.0 ppm and a NJDEP Non-Residential Guideline of 600.0 ppm.
- Barium at 2,415 ppm versus a Resource Conservation Act (RCRA) Action level of 400 ppm and a NJDEP Residential Guideline of 600.0 ppm.

All other metals and PCB parameters/constituents analyzed were either below their laboratory detection limits or below the comparative levels utilized in this Report. A soil sample from boring B-1 composited from 18.5 to 20.5 feet was analyzed for Total Petroleum Hydrocarbons (TPH) and Total Organic Halides (TOX), and indicated a low TPH level of 28.0 ppm, which is below the Virginia Water Control Board (VWCB) action level of 100.0 ppm for underground storage tank (UST) closures and below the Virginia Department of Waste Management (VDWM) limit of 50.0 ppm for the use of petroleum impacted soils as clean fill; the TOX level was below the laboratory detection limit.

Based on this assessment, a Phase IIB investigation is recommended consisting of two (2) soil borings in the upper portion of the Taking and three (3) hand augers on the slopes of the Taking to assess the potential for metals impacted soils and slag.

Water samples from the ground water sampling well, MW-1, were tested for TPH-IR, TOX, Total Metals and Volatile Organic Compounds (VOCs), which indicated an elevated TPH level of 2.3 ppm, which is

RRFRP Relative Levels of Constituents Encountered in Phase IIA

Property	Condition Suggesting Phase IIB	Proposed Allowable Ground Water Concentrations (mg/l)[1]	SDWA MCL[2] (mg/l)	Chronic WQC[3] (mg/l) (Dissolved Metal)	Acute WQC (mg/l)[4] (Dissolved Metal)	EPA-RBC Non-Residential (mg/kg)[5]	EPA-RBC Residential (mg/kg)	Other	
& Southern #7	Five (5) elevated PSG for Toluene & solvents	—	—	—	—	—	—	—	Rip r snagg
	TPH in soils up to 660 ppm	—	—	—	—	—	—	365.0 ppm OLM[6]	
	Arsenic in soils up to 37.8 ppm	—	—	—	—	310.0 ppm	23.0 ppm	—	
	Barium in soils up to 7,002 ppm	—	—	—	—	72,000 ppm	5,500 ppm	—	
	Cadmium in soils up to 2.29 ppm	—	—	—	—	510.0 ppm	39.0 ppm	—	
→	Lead in soils up to 905 ppm	—	—	—	—	—	—	500.0 ppm EPA[6]	
Scrap Iron &	Lead in water at 0.10 ppm	0.176 ppm	0.015 ppm	0.0051 ppm	0.13 ppm	—	—	—	5 to 1 150 ft
	Lead in water in drums at 0.12 ppm	0.176 ppm	0.015 ppm	0.0051 ppm	0.13 ppm	—	—	—	
	Cadmium in water in drums at 0.002 ppm	0.052 ppm	0.005 ppm	0.0015 ppm	0.006 ppm	—	—	—	
	Three (3) elevated PSGs for petroleum	—	—	—	—	—	—	—	
& Southern #8 y VSI&M)	Three (3) elevated PSGs for petroleum	—	—	—	—	—	—	—	20 to 150 ft
	TPH in water at 1.8 ppm	34.6 ppm	—	—	—	—	—	1.0 ppm VWCB[7]	
	Lead in water at 0.35 ppm	0.176 ppm	0.015 ppm	0.0051 ppm	0.13 ppm	—	—	—	
Scrap Iron & 2	Barium in soils at 2,415 ppm	—	—	—	—	72,000 ppm	5,500 ppm	—	Cleari
	Lead in soils at 116 ppm	—	—	—	—	—	—	500.0 ppm EPA[6]	
	TPH in water at 2.3 ppm	34.6 ppm	—	—	—	—	—	1.0 ppm VWCB[7]	
	Cadmium in water at 0.681 ppm	0.052 ppm	0.005 ppm	0.015 ppm	0.0060 ppm	—	—	—	
	Lead in water at 0.14 ppm	0.176 ppm	0.015 ppm	0.0051 ppm	0.13 ppm	—	—	—	
	One (1) elevated PSG for petroleum	—	—	—	—	—	—	—	
olden (used by 1)	Two (2) elevated PSG for petroleum	—	—	—	—	—	—	—	Cleari

Bolded comparative levels exceeded per test results at the given site.